

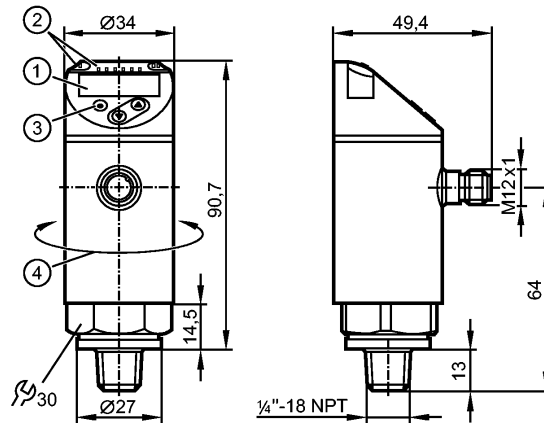


# PN2670

PN-400-SEN14-MFRKG/US/ IV



Pressure sensors



- 1: 4-digit alphanumeric display / alternating indication of red and green
- 2: LEDs (display unit / switching status)
- 3: Programming button
- 4: Upper part of the housing can be rotated by 345°



## Product characteristics

Electronic pressure sensor

M12 connector

Function programmable

Measuring element: metal thin film cell

Process connection:  $\frac{1}{4}$ " NPT

2 outputs

OUT1 = switching output

OUT2 = switching output or analog output

4-digit alphanumeric display / alternating indication of red and green

Measuring range: 0...5800 psi / 0...400 bar / 0...40 MPa

## Application

Application	Type of pressure: relative pressure Group 2 fluids according to the Pressure Equipment Directive (PED), group 1 fluids on request		
Pressure rating	11580 psi	800 bar	80 MPa
Bursting pressure min.	24650 psi	1700 bar	170 MPa
Vacuum resistance [mbar]	-1000		
Medium temperature [°C]	-25...80		

## Electrical data

Electrical design	DC PNP/NPN
Operating voltage [V]	18...30 DC <sup>1)</sup>
Current consumption [mA]	< 35
Insulation resistance [M $\Omega$ ]	> 100 (500 V DC)
Protection class	III
Reverse polarity protection	yes

## Outputs

Output	2 outputs OUT1 = switching output OUT2 = switching output or analog output
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Pressure sensors

Output function	2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:5)		
Current rating [mA]	250		
Voltage drop [V]	< 2		
Short-circuit protection	yes (non-latching)		
Overload protection	yes		
Switching frequency [Hz]	≤ 500		
Analog output	4...20 mA; 0...10 V		
Max. load [Ω]	4...20 mA: max. 500		
Min. load resistance [Ω]	0...10 V: min. 2000		

Measuring / setting range			
Measuring range	0...5800 psi	0...400 bar	0...40 MPa
Setting range			
Set point, SP	40...5800 psi	2.5...400 bar	0.25...40 MPa
Reset point, rP	10...5780 psi	1...398.5 bar	0.1...39.85 MPa
Analog start point, ASP	0...4640 psi	0...320 bar	0...32 MPa
Analog end point, AEP	1160...5800 psi	80...400 bar	8...40 MPa
in steps of	10 psi	0.5 bar	0.05 MPa

Accuracy / deviations	
Accuracy / deviations (in % of the span) Turn down 1:1	
Switch point accuracy	< ± 0.4
Characteristics deviation *)	< ± 0.25 (BFSL) / < ± 0.5 (LS)
Hysteresis	< ± 0.1
Repeatability **)	< ± 0.1
Long-term stability ***)	< ± 0.05
Temperature coefficients (TEMPCO) in the temperature range -25...80° C (in % of the span per 10 K)	
Greatest TEMPCO of the zero point	0.2
Greatest TEMPCO of the span	0.2

Reaction times	
Power-on delay time [s]	0.3
Min. response time switching output [ms]	< 1.5
Delay time programmable dS, dr [s]	0...50
Damping for the switching output (dAP) [s]	0...4
Damping for the analog output (dAA) [s]	0...4
Response time analog output [ms]	< 3
Integrated watchdog	yes

Software / programming	
Programming options	hysteresis / window function; NO / NC; on delay, off delay; damping; display unit; current/ voltage output

Interfaces	
IO-Link Device	
Transfer type	COM2
IO-Link revision	1.1



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Pressure sensors

SDCI standard	IEC 61131-9
IO-Link Device ID	469 d / 00 01 d5 h
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis
SIO mode	yes
Required master port class	A
Process data analogue	1
Process data binary	2
Min. process cycle time [ms]	2.3

Environment	
Ambient temperature [°C]	-25...80
Storage temperature [°C]	-40...100
Protection	IP 65 / IP 67

Tests / approvals	
Pressure equipment directive	97/23/EG: sound engineering practice
EMC	DIN EN 61000-6-2 DIN EN 61000-6-3
Shock resistance	DIN EN 60068-2-27 50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6 20 g (10...2000 Hz)
MTTF [Years]	129
UL approval number	J014

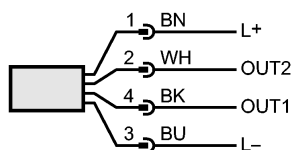
Mechanical data	
Process connection	¼" NPT
Materials (wetted parts)	1.4542 (17-4 PH / 630) <sup>2</sup>
Housing materials	1.4542 (17-4 PH / 630) <sup>2</sup> ; stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Min. pressure cycles	100 million
Tightening torque [Nm]	50 <sup>3)</sup>
Restrictor element integrated	no (can be retrofitted)
Weight [kg]	0.242

Displays / operating elements	
Display	Display unit 3 x LED green (bar, psi, MPa) Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green

Electrical connection	
Connection	M12 connector; gold-plated contacts

### Wiring

- Core colors
- BK black
- BN brown
- BU blue
- WH white



OUT1: switching output or IO-Link  
 OUT2: switching output or 4...20 mA / 0...10 V  
 Colours to DIN EN 60947-5-2



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Pressure sensors

## Remarks

Remarks	*) BFSL = Best Fit Straight Line / LS = Limit Value Setting **) with temperature fluctuations < 10 K ***) in% of the span / 6 months 1) to EN50178, SELV, PELV 2) Characteristics similar to stainless steel (e.g. 304/1.4301) but higher strength. 3) Depends on lubrication, seal and pressure rating
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Pack quantity	[piece]	1
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